

Restoring Rivers and Streams

River Programs

Land and Waters Bureau



River Programs



Water Trails serves recreational river and lake users.

Dam mitigation serves communities and state interests for safer, ecologically sound approaches.



Protected water areas program works toward voluntary riparian corridor protection in five scenic river segments.

Team supports **river clean-ups**.



River safety education, including train-the-trainers naturalist schools, livery classes.

Natural channel design / river restoration.



Stream Instability:

**Who wants
answers? Who
calls us?**



Homeowners

Landowners



Utility Owners



An aerial photograph showing a river with a prominent meander. The river is dark and flows through a dry, brownish landscape. On the right bank, there is a small settlement with several buildings, including a large one with a corrugated metal roof. The riverbank on the left is steep and eroded, with some sparse vegetation. The overall scene suggests a rural or semi-rural area in a dry climate.

Watershed Coordinators







Rivers Bolster Iowa's Economy

- 67 canoe/kayak/tube outfitters statewide make up a multi-million dollar industry
- ISU study showed half of Iowans played on rivers in 2009, generating:
 - \$824 million in sales
 - \$130 million in personal income

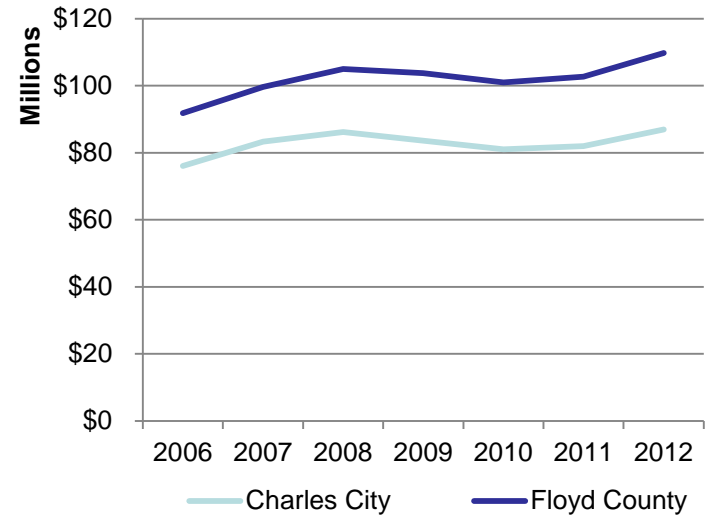


Urban Restorations

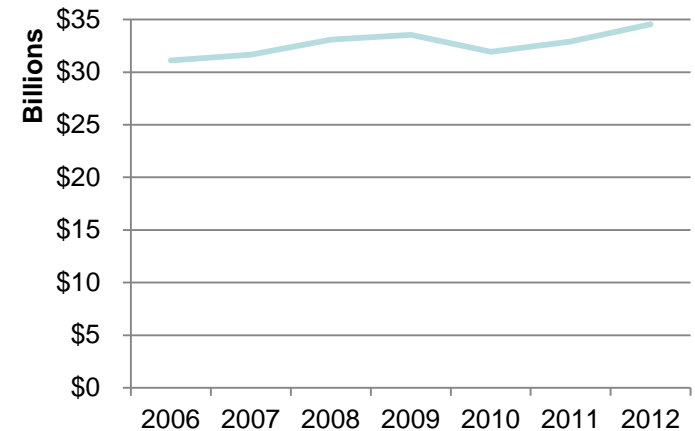
Charles City Riverfront



Taxable Sales, Local



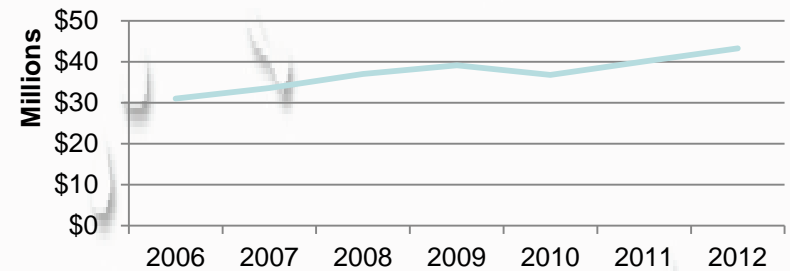
Taxable Sales State



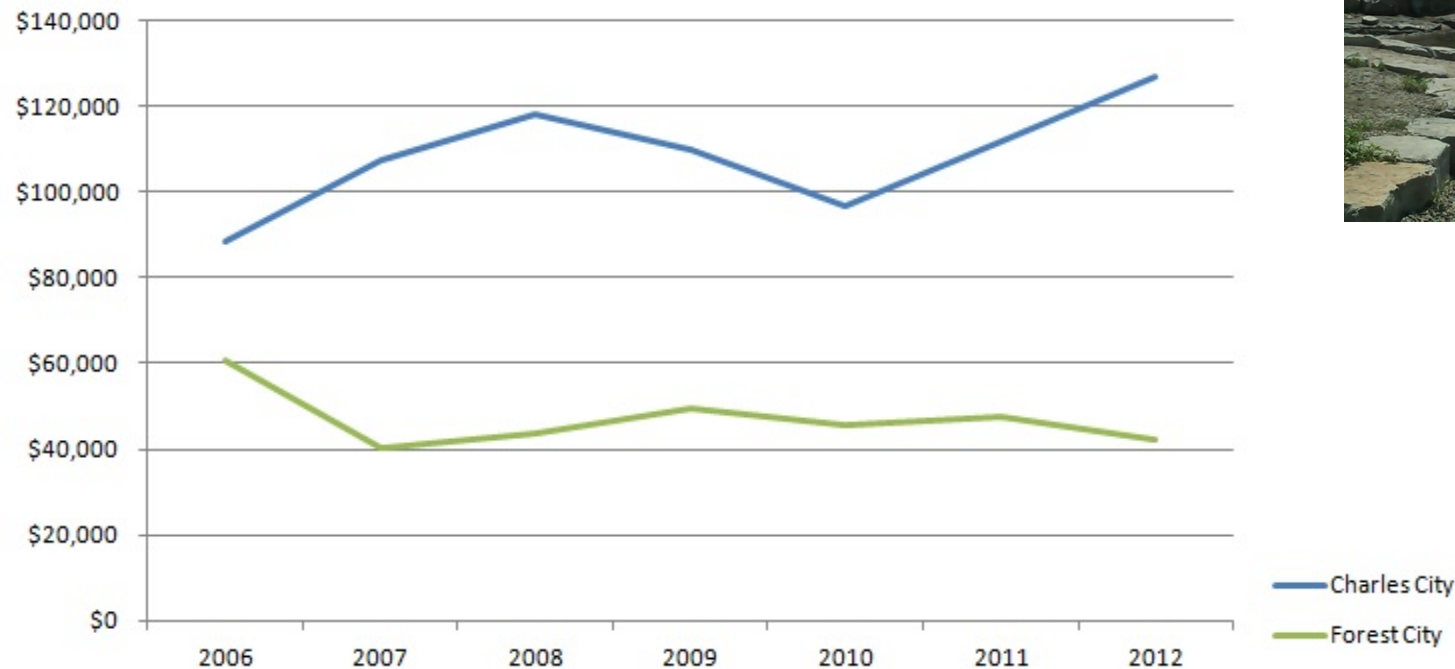
Urban Restorations

Charles City vs. Forest City

Hotel-Motel Tax Receipts Statewide Trend



Hotel-Motel Tax Trends



Instability: Why It's a Problem

- Vegetation can't grow near water (no filtering)
- Slumped banks make water shallow, channel wider, and water hotter.
- Ruins habitat
- Things of value fall in (bridges, corn, etc.)

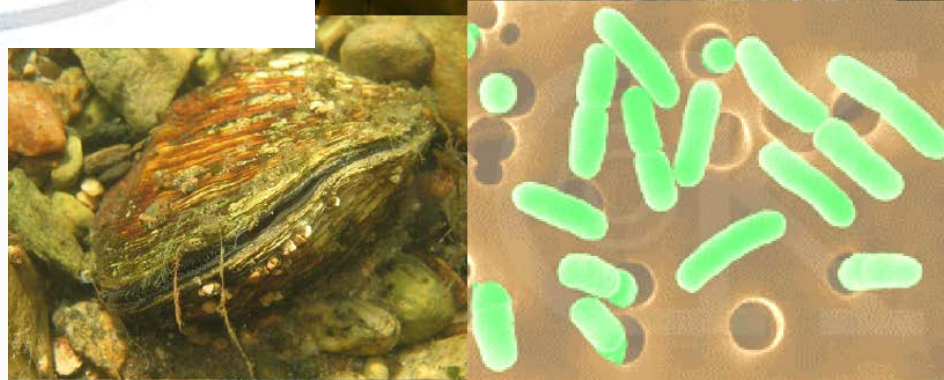
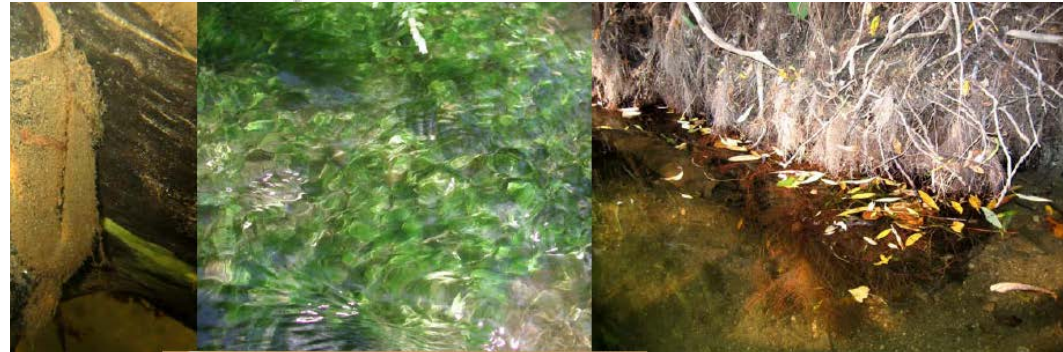
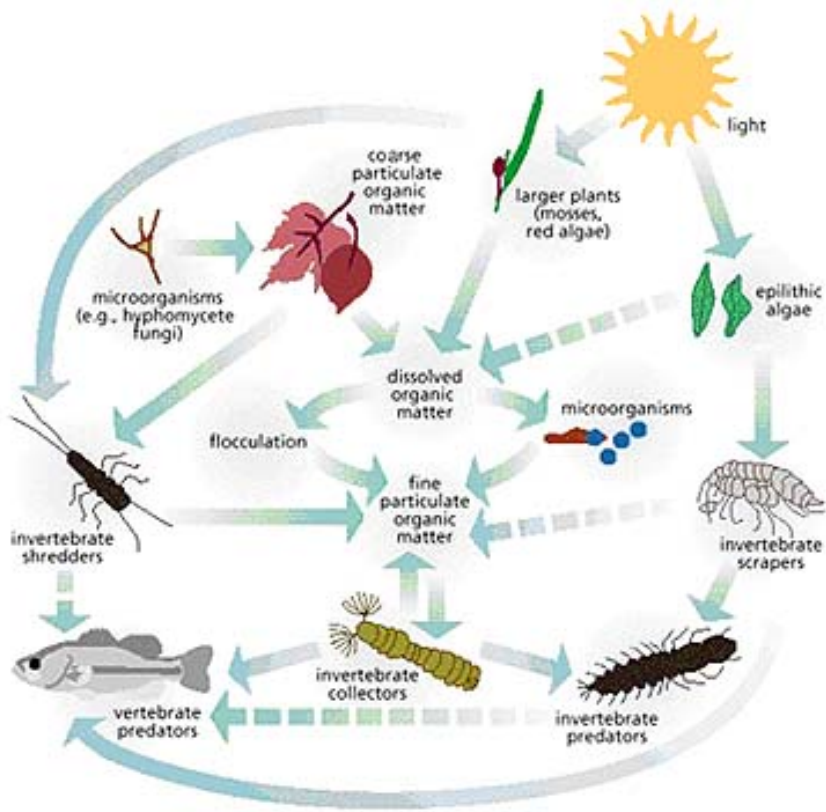


What's stable? What's healthy?

- Low floodplains dissipate energy, reducing erosion
- Tight, deep channels focus scour on the bottom
- Veg to the edge



What should be there?

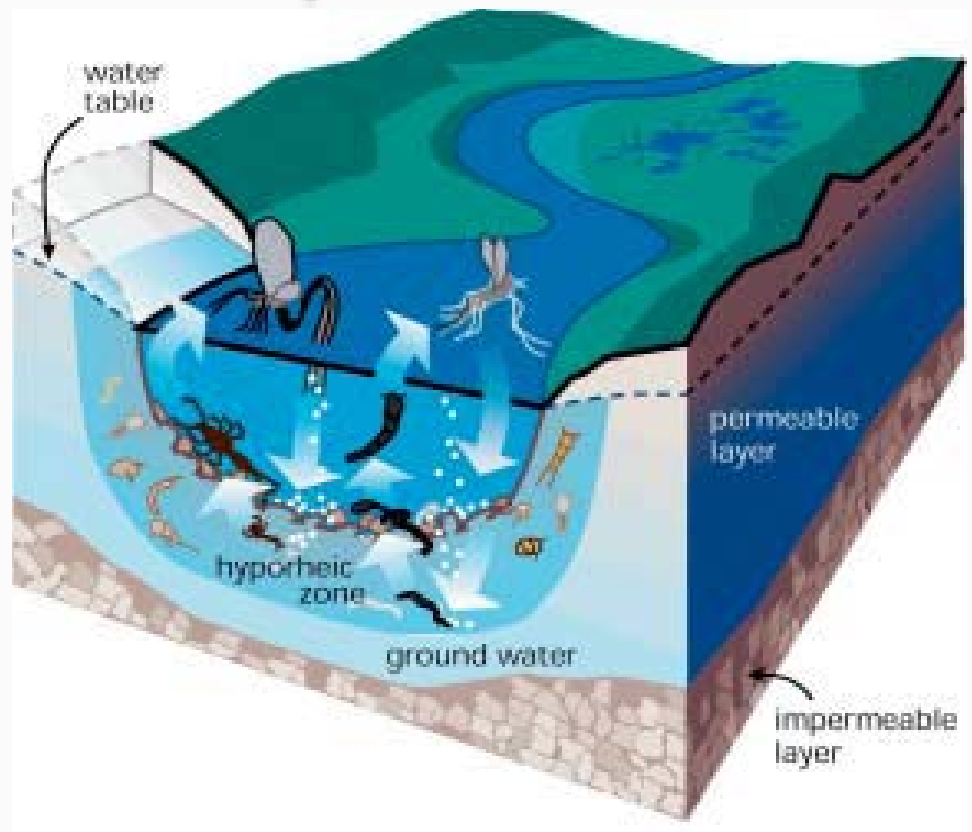


Slide:
Luther
Aadland

If the river system is missing pieces, it processes nutrients poorly.

Ecological Services

- Natural filters
- Physical condition of bed & banks can make a significant difference



Natural filtration?





Credit:
Luther Aadland
Minnesota DNR



Credit:
Luther Aadland
Minnesota DNR















Restoration Techniques



States with River Restoration...

- Agencies / university coordination
- Knowledge avoids repeating failures
- Targeting produces noticeable results
- Experts evaluate projects
- Training and demonstrations



**Steep Rocky
Channel**



Stable Channel Types

**Boulder
Channel**



**Broad
Floodplain,
well
vegetated
Channel**



Unstable Channel Types



**Widening
Channel**



**Gully
Channel**



**Coon Creek
south of
Denison**

Mitigation Requirements

- USACE Section 404 permitting process requires adverse impacts to streams be mitigated to obtain permits.
- Implementing mitigation USACE and those who do projects.
- Could be more sensibly targeted, by creating restoration credit markets

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